

CMS and LHC Update

Jacob Linacre (FNAL)
For the CMS Collaboration

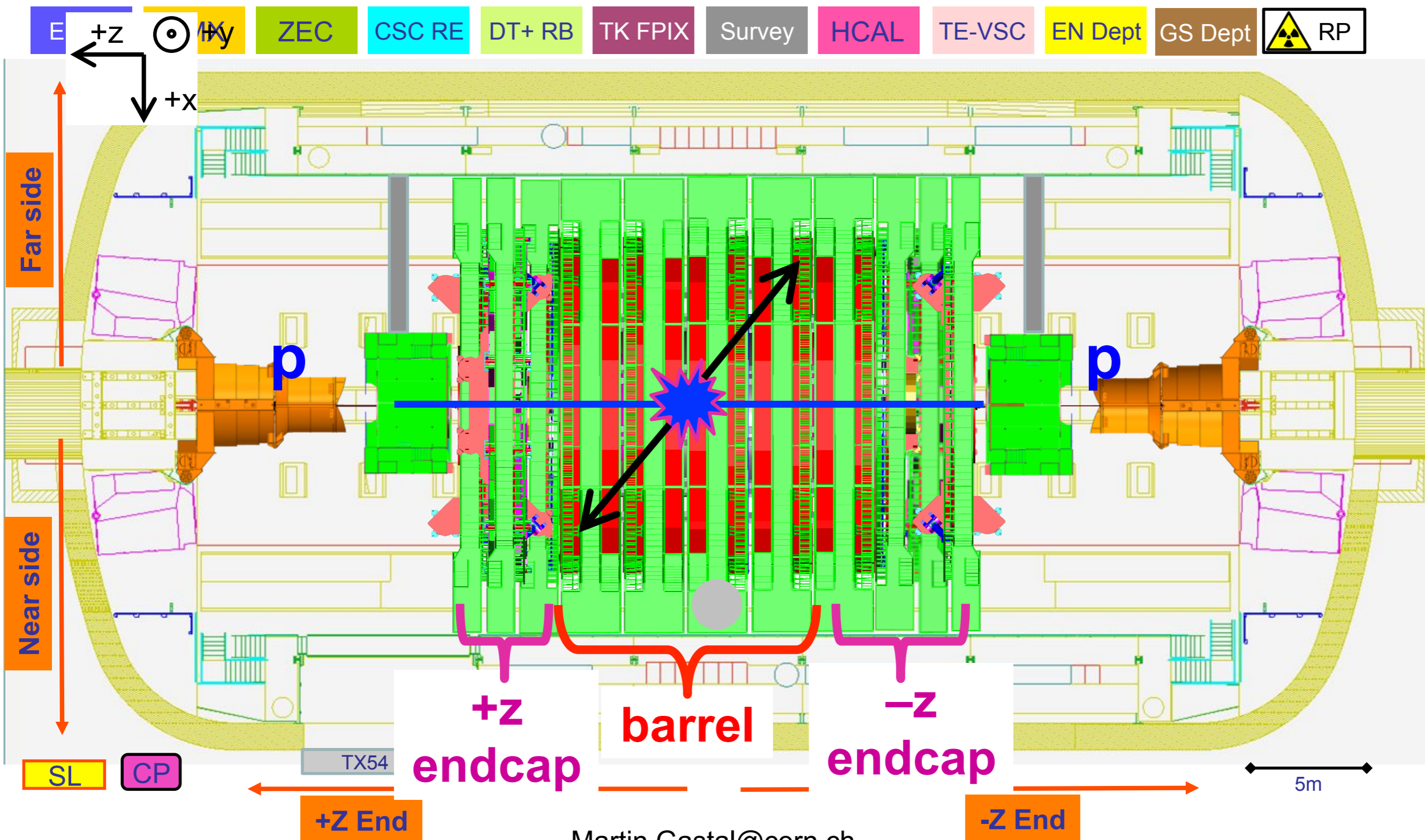
All Experimenters' Meeting
1st April 2013



- ▶ It takes several weeks to bring CMS to fully open configuration
- ▶ image shows HF (forward HCAL) being moved to garage
- ▶ next few slides show various stages of opening



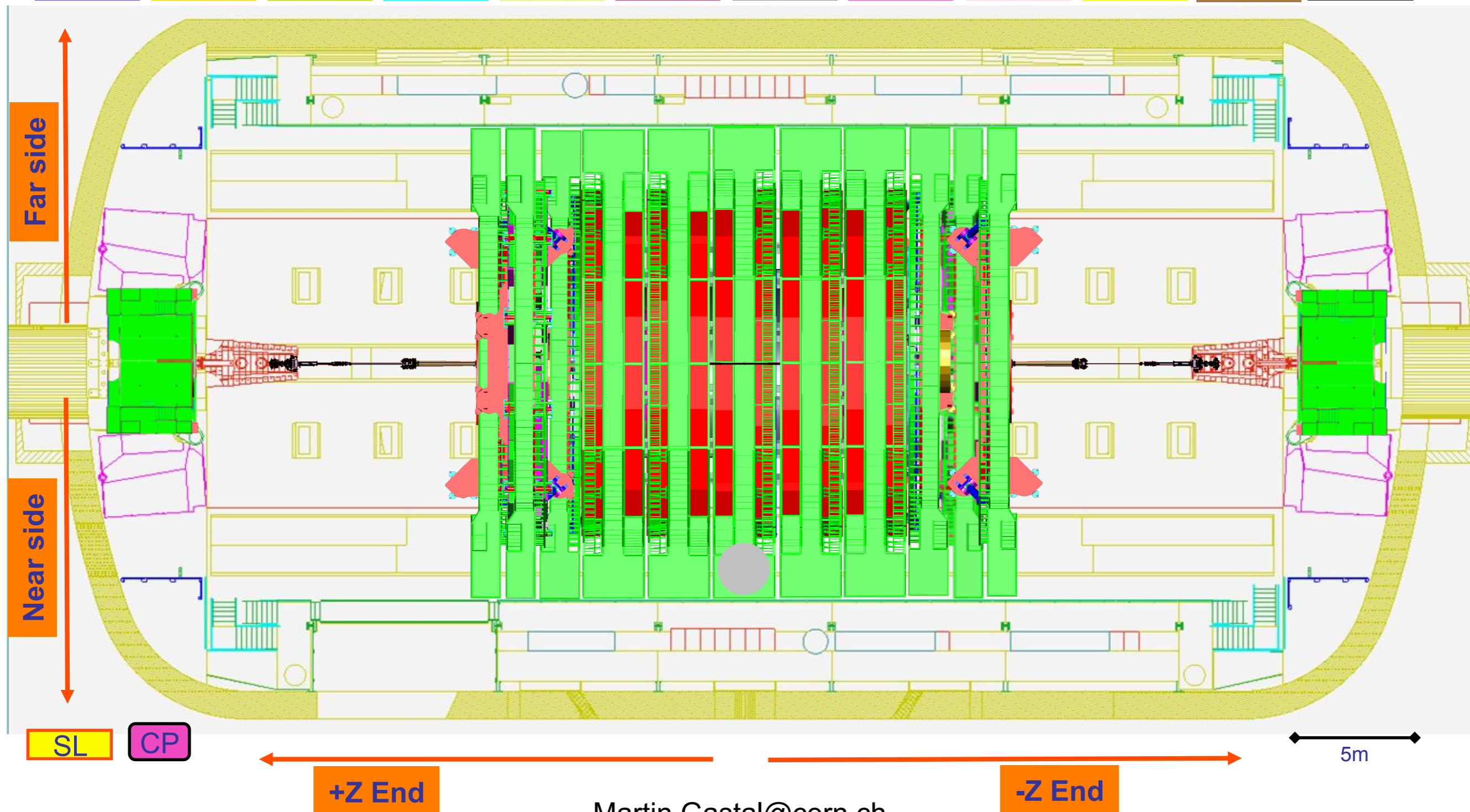
Cryogenics		EL power		Water cool.		Database	
IT		Magnet		C6F14		Gas	



Martin.Gastal@cern.ch

Cryogenics		EL power		Water cool.		Database	
IT		Magnet		C6F14		Gas	

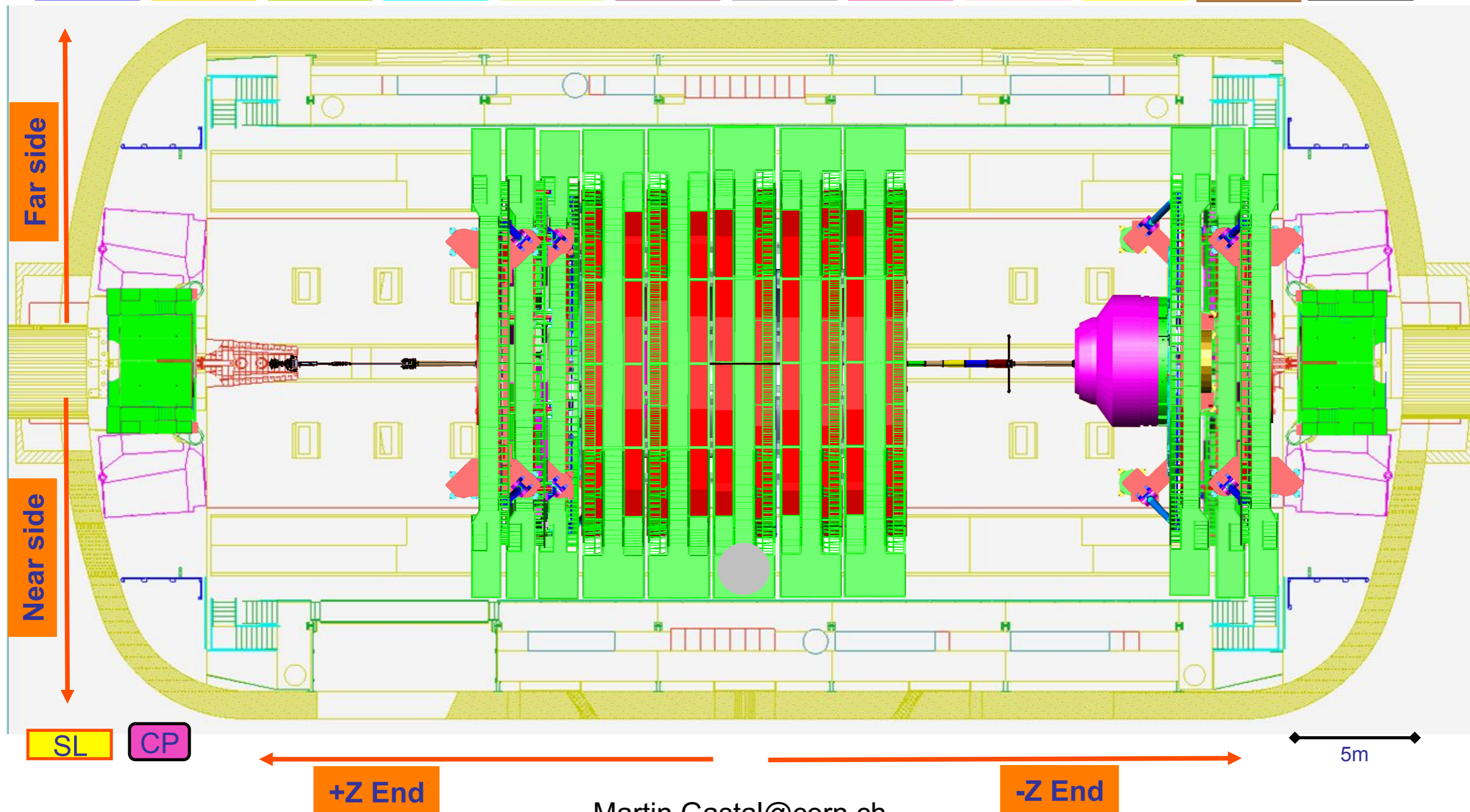
ECAL	CMX	ZEC	CSC RE	DT+ RB	TK FPIX	Survey	HCAL	TE-VSC	EN Dept	GS Dept	RP
------	-----	-----	--------	--------	---------	--------	------	--------	---------	---------	----



Martin.Gastal@cern.ch

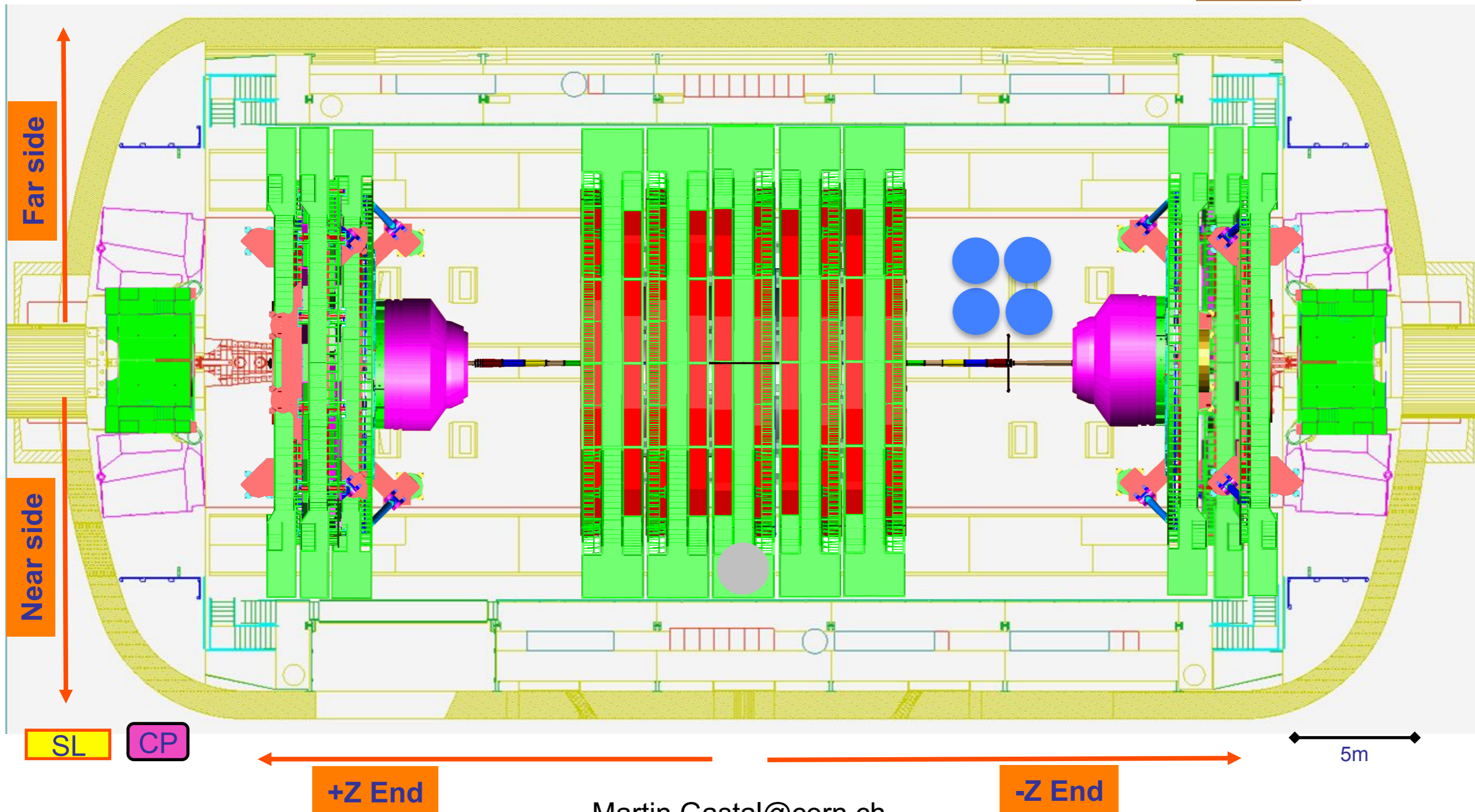
Cryogenics		EL power		Water cool.		Database	
IT		Magnet		C6F14		Gas	

ECAL	CMX	ZEC	CSC RE	DT+ RB	TK FPIX	Survey	HCAL	TE-VSC	EN Dept	GS Dept	RP
------	-----	-----	--------	--------	---------	--------	------	--------	---------	---------	----

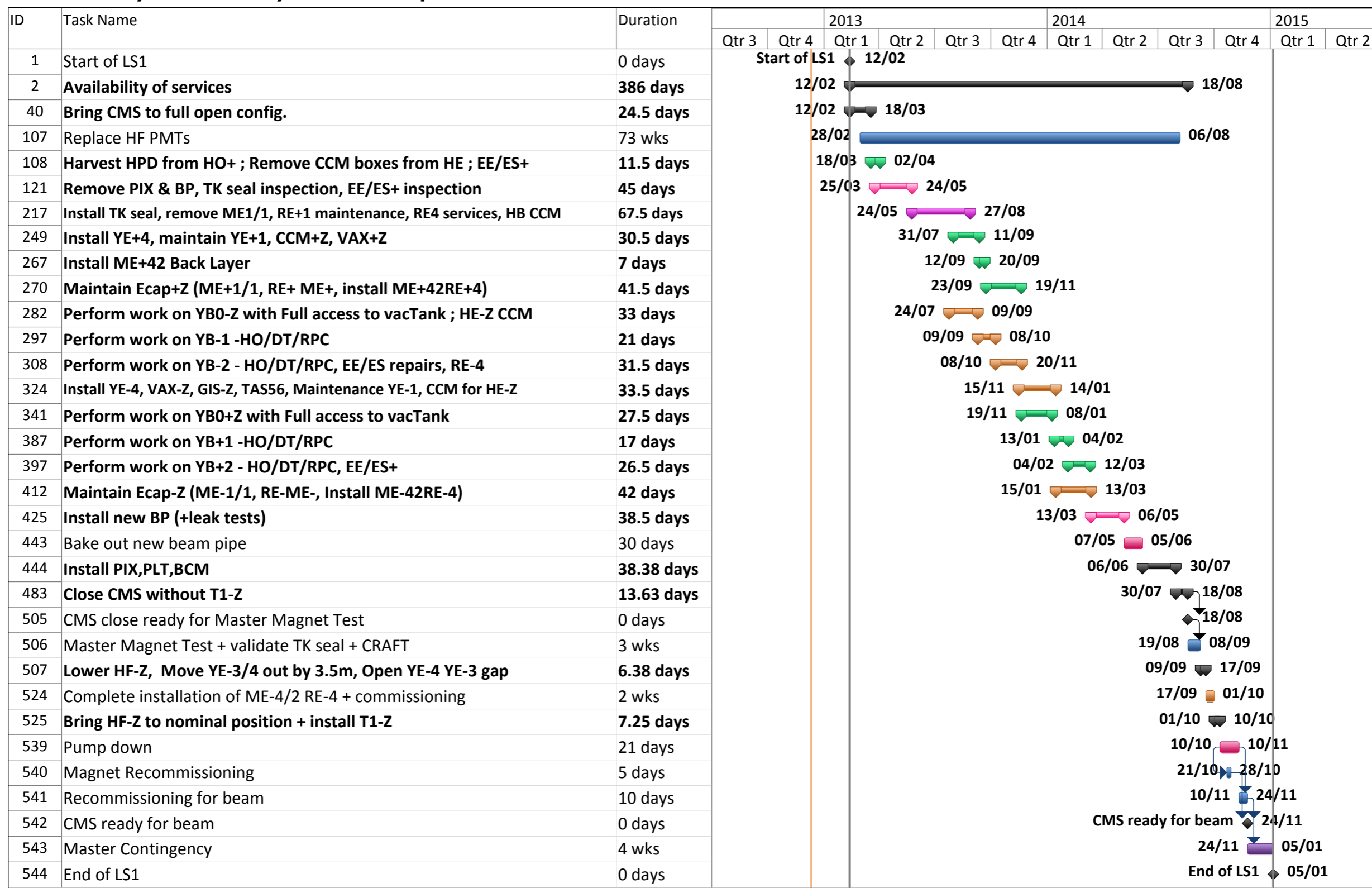


Cryogenics		EL power		Water cool.		Database	
IT		Magnet		C6F14		Gas	

ECAL	CMX	ZEC	CSC RE	DT+ RB	TK FPIX	Survey	HCAL	TE-VSC	EN Dept	GS Dept	RP
------	-----	-----	--------	--------	---------	--------	------	--------	---------	---------	----



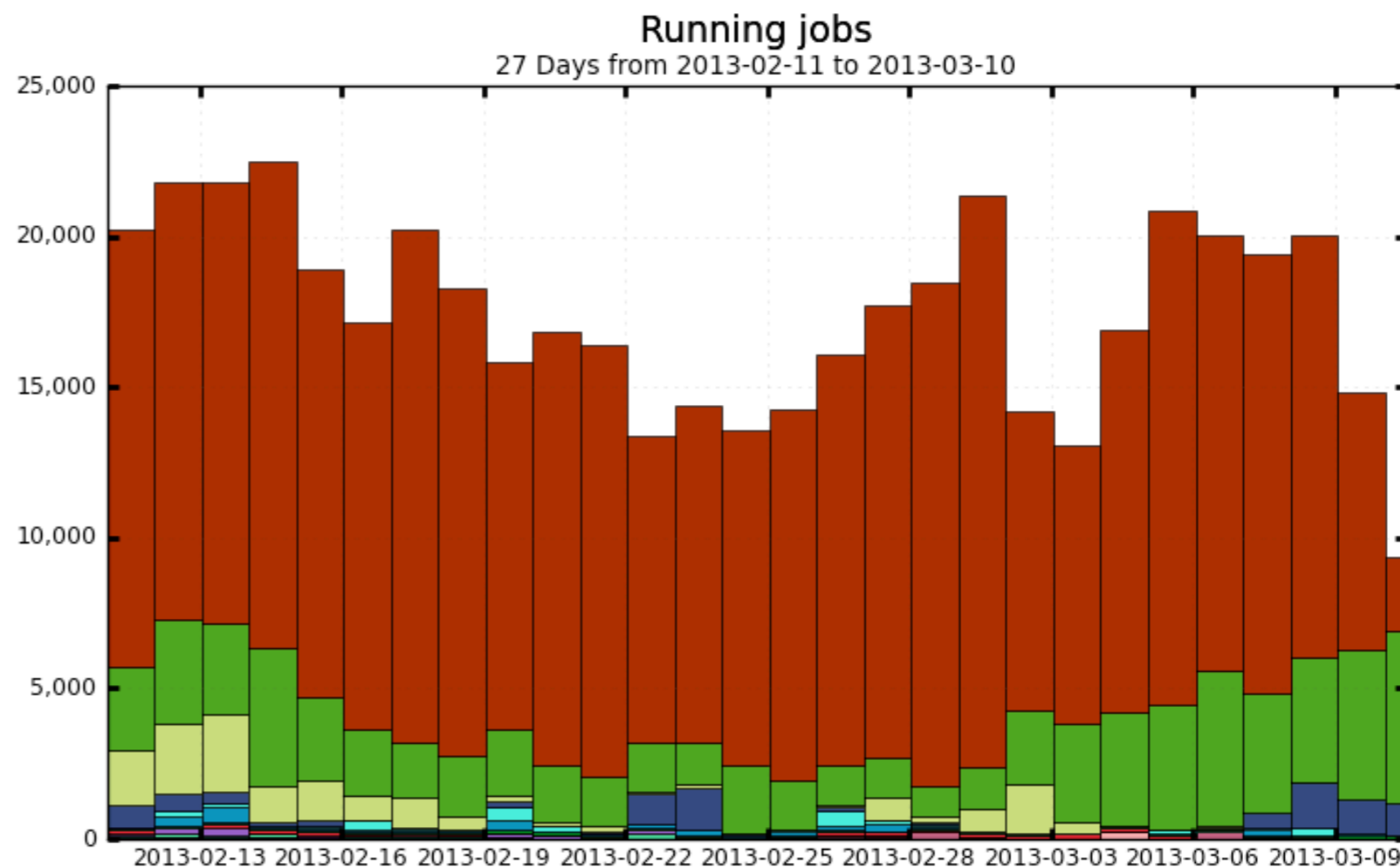
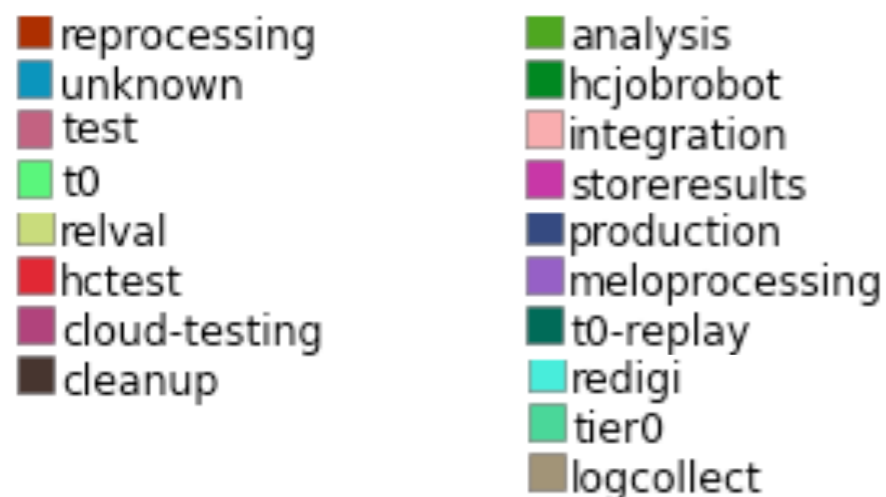
- ▶ Many upgrade projects in progress
- ▶ Currently a few days behind planned schedule



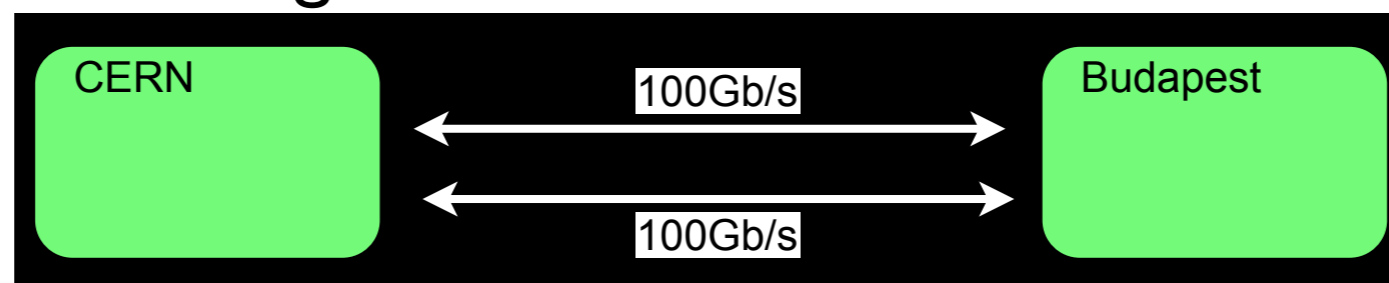
- ▶ Each week we'll focus in more detail on a single upgrade project
- ▶ This week: computing upgrade
- ▶ Current status: Re-reconstructing all 2012 data
 - ▶ significant contribution from the ROC, including roles in operations, coordination, and shifts for data certification

- ▶ 20K parallel cores at the TIs+CERN

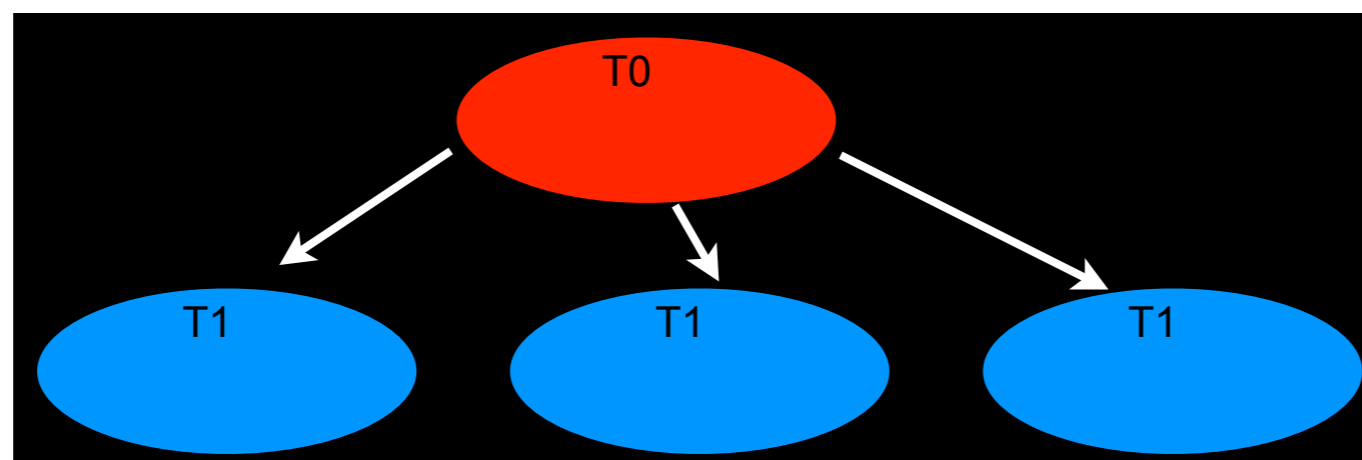
- ▶ key to job types:



- ▶ Demands on computing will go up by ~factor of 6, while our capacity will only roughly double
 - ▶ need big efficiency gains
- ▶ HLT (High Level Trigger) cloud commissioning work ongoing to increase capacity
 - ▶ recently tested by running ~3500 data reprocessing jobs on the HLT
- ▶ Opportunistic computing increases capacity for processing tasks
 - ▶ recently used 8000 cores at the San Diego Super Computing Center
- ▶ CERN is deploying a remote computing facility in Budapest
 - ▶ 200Gb/s of network link to CERN at 35ms latency
 - ▶ To users this is indistinguishable from local CERN resources!
 - ▶ More such links are being commissioned



- ▶ Increase efficiency by restructuring the processing infrastructure
 - ▶ decrease distinction between T1 and T2 sites, so we can benefit from the combined total of slots for processing
 - ▶ read data from remote storage for CPU intensive tasks
 - ▶ only functional difference between T1s and T2s will be that T1s are used for archival (tape storage)
- ▶ use T1 sites for prompt reco (previously restricted to T0)



- ▶ Lots of potential for improvement